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(54) **Toolbox and tray assembly**

(57) A tool tray (2, 4) has top and bottom (6, 8, 30, 32) surfaces, with side walls (10, 34) extending upwardly from the bottom surface to the top surface. An intermediately disposed handle (18, 48) extends upwardly between the side walls of the tray, and has a horizontal gripping portion (20, 50) and supportive end portions (24, 54). A profile passageway (28, 58) is also provided to extend through the bottom surface of the tray in communication with the hand opening, whereby upon stacking positionment of the bottom surface of one of the trays upon the top surface of a substantially like configured second tray, the handle gripping portion of the second tray projects through the profiled passageway of the first tray into close underlying proximity with the handle gripping portion of the first tray. So positioned, the handle gripping portions nest and the trays (2, 4) can be simultaneously lifted from the confines of a toolbox in single handed fashion.

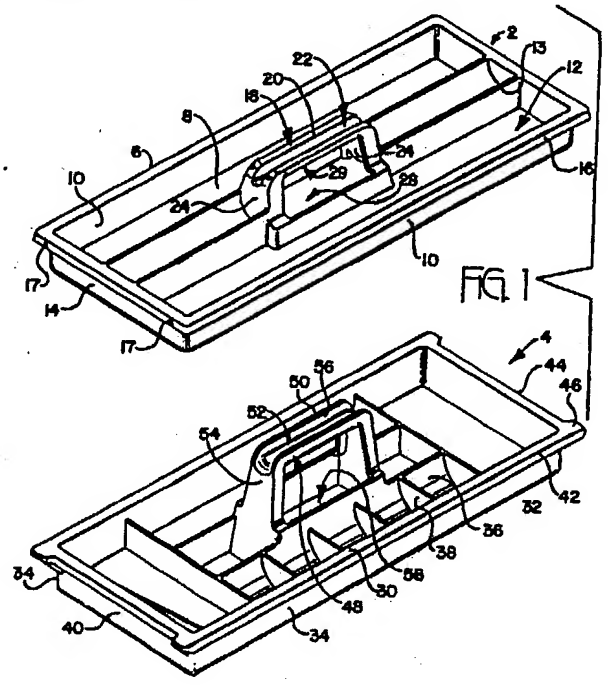

FIG. 1

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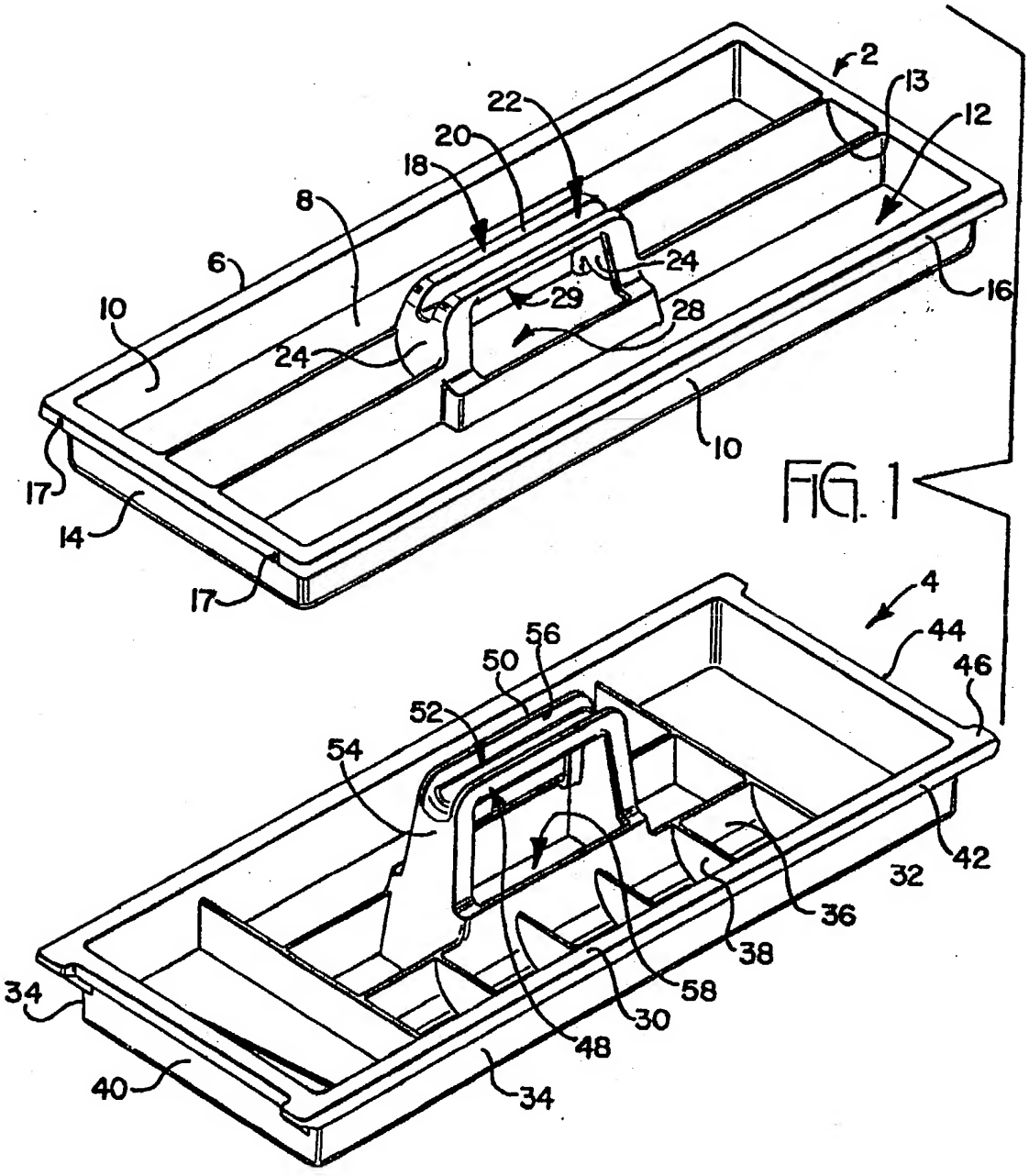
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FIG. 1

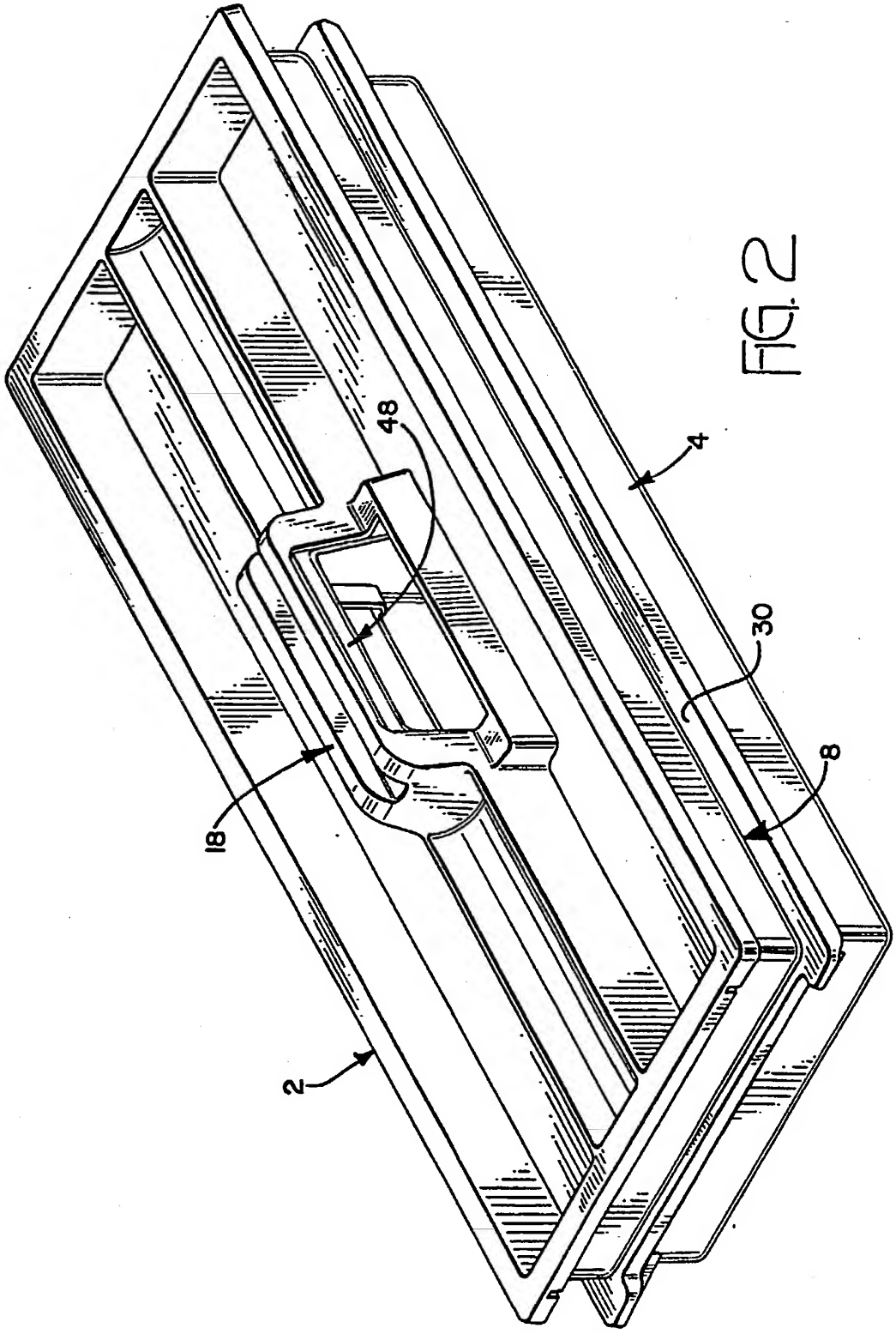

FIG.2

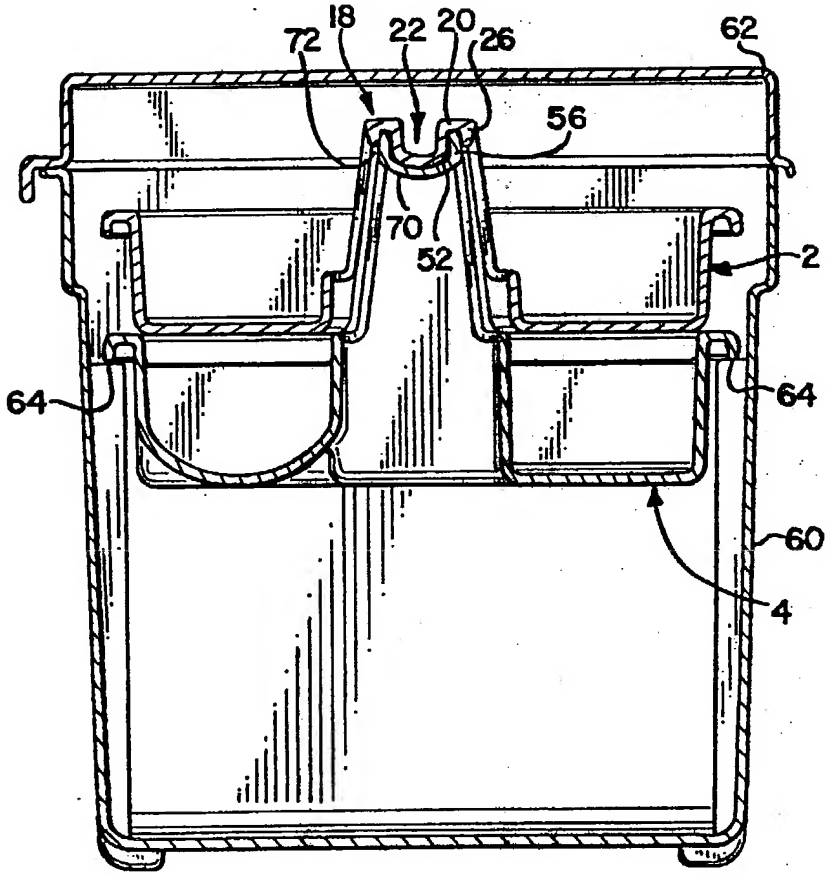

FIG. 3

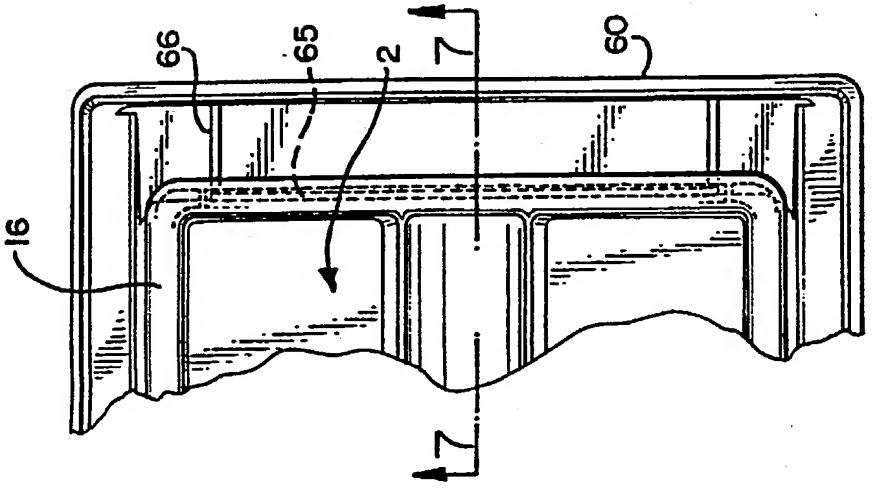

FIG. 6

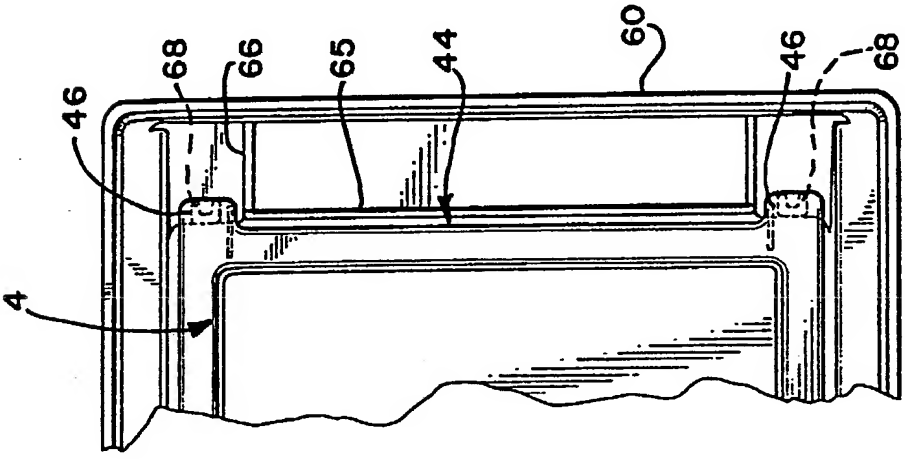

FIG. 5

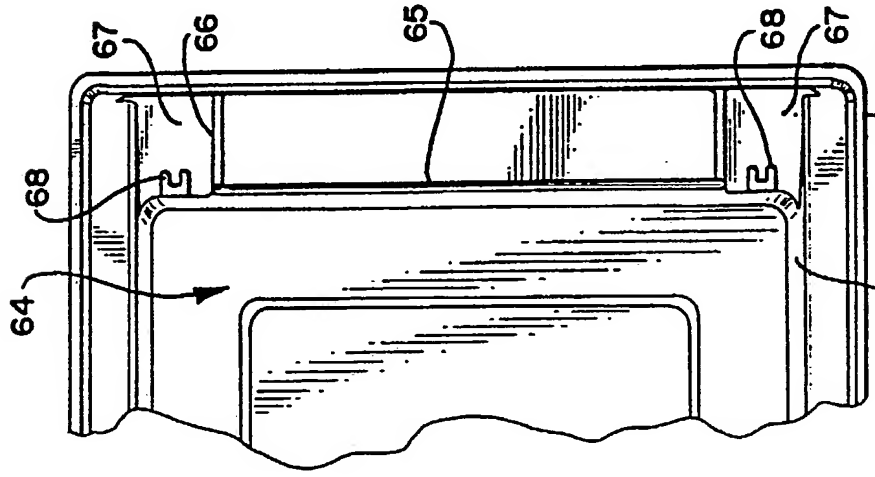

FIG. 4

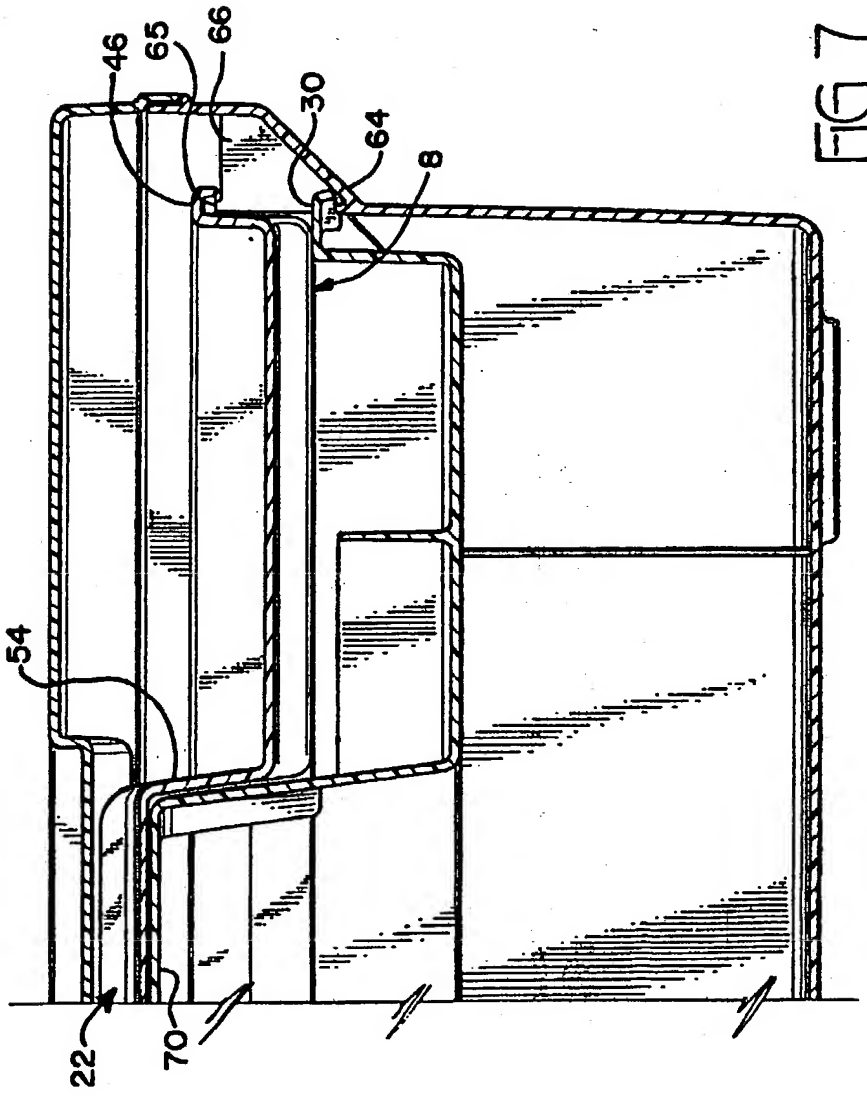

FIG. 7

TOOLBOX AND TRAY ASSEMBLY

Field of the Invention

This invention relates generally to toolboxes of the type having a removable utility tray for transporting tools from the toolbox to a work site; and more specifically to a toolbox having more than one such utility tray.

BACKGROUND OF THE INVENTION

Toolboxes incorporating a removable utility tray are generally well known in the industry. Typically such boxes are four-sided containers having a pivotally attached lid, and an internally directed ledge for supporting a rectangular tool tray. The tool tray is generally configured as a four-sided rectangular box, and includes a handle which extends upwardly from the ends of the tool tray. The tool tray can be lowered into the toolbox, and is there supported by the internally directed ledge of the box. Various hand tools can be stored within the confines of the tray. A user withdraws the tray by manually lifting up on the handle, and thereupon can carry the tray and its contents to a remote work site.

While the above configuration, known to the industry, works well and has been well accepted, certain shortcomings prevent it from achieving an optimal utility. One shortcoming is that the relatively small storage capacity represented by the tray limits the number of tools which can be transported from the toolbox to a work location. A second shortcoming is that the tray is generally exposed at the top, and therefore tools can fall from the tray in-transit from the

toolbox to the work site. Also, because of this risk, small items such as nails or screws cannot be stored in the tray, because of the possibility of their spilling out of the tray enroute to a work site.

SUMMARY OF THE INVENTION

According to the subject invention a four-sided stackable tool tray is provided comprising bottom and top surfaces, with side and end walls extending upwardly from the bottom surface to the top surface. An intermediately disposed profiled handle extends upwardly between the side walls of the tray, the handle having an upper horizontal gripping portion and supportive end portions. A hand opening is located below the gripping portion, between the handle end portions. A profiled passageway is also provided to extend through the bottom surface of the tray, in communication with the hand opening, whereby upon stacking positionment of the bottom surface of a first tray upon the top surface of a substantially like-configured second tray, the handle gripping portion of the second tray projects through the profiled passageway of the first tray into close underlying proximity with the handle gripping portion of the first tray. The handle gripping portions of the top and bottom tray, so positioned, nest and can be simultaneously lifted from the confines of the toolbox in single handed fashion. Furthermore, since the lower tray is completely covered by the upper tray in storage as well as in transit, small items contained in the lower tray cannot spill when the upper and lower trays are moved. According to a further aspect of the present invention, the tray handle gripping portions are configured such that they are offset and define an opening therebetween, whereby admitting a user's fingers for manual

separation. Consequently, a user can either lift both trays simultaneously, or alternatively, individually lift the first tray from the second tray by separating the handle portions.

Accordingly, it is an objective of the present invention to provide a toolbox and tray assembly consisting of upper and lower trays which, when nested together, can be picked up with one hand.

A further objective of the present invention is to provide a toolbox and tray assembly having upper and lower trays which interlock together to prevent the trays from separating while the trays are transported from one location to another.

Yet a further objective of the present invention is to provide a toolbox and tray assembly having stackable trays offering an assortment of storage compartments suitable to receive small items and tools.

Yet a further objective of the present invention is to provide a toolbox and tray assembly having trays which nest by their handles, characterized by an offset in the handle alignment, forming an opening by which a user can readily separate the trays.

Another objective of the present invention is to provide a toolbox and tray assembly comprising stackable trays which can be stored within the confines of a toolbox, and yet can be simultaneously and single handedly transported to a remote work location.

Yet a further objective of the present invention is to provide a toolbox and tray assembly having stackable trays which are free standing in the stacked condition, and receivable into toolbox in the stacked configuration.

Yet a further objective of the present invention is to provide a toolbox and tray assembly which can be readily manufactured out of inexpensive plastics material and which can be readily assembled by the user.

A further objective of the present invention is to provide a toolbox and tray assembly comprising stackable trays, wherein the upper tray, in addition to functioning as a storage container, also functions as a lid to the underlying tray.

These and other objectives, which will become apparent to one skilled in the art, are achieved by a preferred embodiment which is described in detail below, and which is illustrated in the accompanying drawings.

BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWINGS

Fig. 1 is an exploded perspective view of the upper and lower trays comprising the subject invention.

Fig. 2 is an assembled perspective view of the upper and lower trays comprising the subject invention.

Fig. 3 is a transverse sectional assembly view of the stacked upper and lower trays within the confines of a toolbox, configured pursuant to the teachings of the present invention.

Fig. 4 is a partial top plan view of an empty toolbox configured so as to receive upper and lower tool trays configured according to the present invention.

Fig. 5 is a partial top plan view of the toolbox showing the bottom tray in the storage position.

Fig. 6 is a partial top plan view of the toolbox showing the upper tray in its storage position within the toolbox.

Fig. 7 is a longitudinal section view through the subject toolbox and tray assembly, illustrating positionment of the upper and lower trays within the toolbox in the storage position.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring initially to Figs. 1 and 3, a first tool tray 2 and a second tool tray 4 are depicted, each being unitarily molded of conventional plastics material. The first tool tray 2 is configured as a substantially rectangular four-sided container, having a top surface 6, a bottom surface 8, and vertical side walls 10 extending upwardly from the bottom surface 8 to the top surface 6. A plurality of storage compartments 12 are formed within the confines of the tool tray 2, each separated by divider walls 13. While the compartments 12 are depicted as being longitudinal and parallel, other compartment configurations may be designed and utilized if so desired.

Parallel end walls 14 enclose the upper tool tray 2, and a downturned lip flange 16 extends the periphery of the side walls 10 and end walls 14, along the upper rim of the tray 2. As shown in Fig. 1, a pair of spaced apart notches 17 extend into the portions of the downturned lip flange 16, extending along end walls 14.

As shown in Figs. 1 and 3, a handle 18 extends upwardly from between side walls 10 and end walls 14. The handle 18 consists of a horizontal gripping portion 20 into which a longitudinal U-shaped groove 22 is formed. End walls 24 support opposite ends of the horizontal gripping portion 20, and extend upwardly from the bottom surface 8 of the tray to the upper gripping portion 20. As shown in Fig. 1, the handle 18 protrudes upwardly beyond the upward

surface 6 of the tray 2, in the preferred embodiment. However, if so desired, the height of the handle 18 can be lowered below the top surface 6 of the tray 2, without detrimentally altering the function of the present invention.

The handle 18 is further provided with a downturned edge 26 as best viewed in Fig. 3. It will be appreciated that the downturned edge 26 is radiused along an outward surface for a purpose explained below. Extending upwardly through the bottom surface 8 of tray 2 is a profiled passageway 28. It will be appreciated that the horizontal gripping portion 20 and supportive end walls 24 define a hand opening 29 therebetween. Passageway 28 communicates with hand opening 29 as illustrated in Fig. 1.

The lower tray 4 is configured substantially similar to the upper tray 2. The lower tray 4 is defined by a top surface 30, a bottom surface 32, and side walls 34 extending vertically upward from the bottom surface 32 to the top surface 30. A plurality of compartments 36 are defined within the tray 4, separated by dividers 38. Some of the compartments, as shown, have concave bottom surfaces designed for containing small items such as tacks or nails. End walls 40 are provided to enclose the bottom tray 4, and a downturned lip flange 42 extends along the top edge of the end walls 40 and the side walls 34. Recessed into end portions of the lip flange 42 and extending along the end walls 40 are intermediate end recesses 44. Four corner protrusions 46 extend outwardly from the corners of the tray 4, for a purpose explained below.

As with the upper tray 2, the lower tray 4 has a handle 48 extending upwardly from between side walls 34, defined in part by a

horizontal gripping portion 50. Horizontal gripping portion 50 is provided with edge flanges 56 which extend upwardly to define a U-shaped groove 52. The horizontal gripping portion 50 is supported at its ends by end walls 54 which extend upwardly from the bottom surface 32.

Referring now to Figs. 3 and 4, the trays 2, 4 are intended for receipt within a four-sided toolbox 60, open at the top and having an enclosure lid 62. As best seen in Fig. 4, the empty toolbox has a central chamber 64 extending downwardly from the top, between its side walls. At both ends of the toolbox 60 are rectangular compartments defined by a longitudinal vertical wall 65 and vertical end walls 66. The upper edges of the integrally molded walls 65 and 66 are coplaner. Situated adjacent to the end walls 66 are integrally molded inclined surfaces 67 which extend downwardly at a forty-five degree angle into the chamber 64. Situated at the lower end of surfaces 67, and extending outwardly in horizontal fashion therefrom are U-shaped molded bosses 68.

Use of the subject stacking trays and toolbox will be appreciated from the following. Referring initially to Figs. 3, 4, and 5, the lower tray 4 can be placed within the confines of the central chamber 64 of toolbox 60, whereby corner protrusions 46 of tray 4 are supported by the boss protrusions 68. It will be appreciated from Fig. 5 that the recess 44 enables the lower tray 4 to clear vertical walls 65, 66, whereby reaching the lower confines of chamber 64 and achieving engagement with the bosses 68. So supported, the lower tray 4 is in a horizontal and stationary position at a relatively low level of central chamber 64.

Receipt of the upper tray 2 within the box is illustrated by Fig. 6. As shown, the upper tray is supportedly received into the toolbox 60, as notches 17 in downturned edge flange 16 receive the end walls 66 of the toolbox 60. The upper tray 2 is therefore supported by the end walls 66 of toolbox 60, and held in a horizontal position within internal chamber 64. The positionment of the upper and lower trays in the stacked and stored positions is illustrated by Figs. 3 and 7.

As will be appreciated, the upper and lower trays 2 and 4 are intended to be stackable. As shown in Figs. 1 and 2, as the trays are brought together, the handle 48 of the lower tray 4 protrudes through the profiled passageway 28 of the upper tray 2 until it nestingly receives the handle 18 of the upper tray 2. The U-shaped transverse sectional profile, of handles 18, 48 facilitate the nesting of the upper handle 18 within the lower handle 48, as illustrated by Fig. 3.

It will be appreciated that the downturned edge 26 of handle 18 is offset from the arcuate lower surface 70 of handle 48, by a gap 72. Penetration of gap 72 by a user's fingers enables the user to separate the handles and lift the top tray independently of the bottom. However, alternatively if so desired, the nesting arrangement between the U-shaped handles 18, 48 facilitates a simultaneous, single handed lifting of the trays.

As shown in Fig. 3, the outer surface of downward lip flange 26 and the arcuate surface 70 of the lower handle are complementarily radiused and cooperate to form a hand grip, whereby one hand can comfortably grip the two surfaces simultaneously.

However, as explained above, the surfaces are separated by gap 72 such that separation of the handles can be easily and readily facilitated if so desired.

It will be apparent from Fig. 2 that the stacking trays can be transported from the toolbox storage condition of Fig. 3 to a remote work site. The stacking trays are free standing in the configuration shown in Fig. 2, as the lower surface 8 of the top tray 2 rests upon the top surface 30 of the lower tray 4. Furthermore, the bottom surface 8 of the top tray 2 entirely encloses the bottom tray 4 such that the contents of the compartments of tray 4 cannot spill out in transit, or mix from one compartment to another. Resultingly, the upper tray 2 serves a dual function; first as a lid for tray 2, and secondly as an independent storage tray.

While the above describes a preferred embodiment of the present invention, the scope of the subject invention is not to be so confined. Other embodiments, which will be obvious to those skilled in the art, and which utilize the teachings herein set forth are intended to be within the scope of spirit of the subject disclosure.

CLAIMS

1. A tool tray comprising:

   a top and a bottom surface and side walls extending upwardly from said bottom surface to said top surface;

   an intermediately disposed profiled handle extending upwardly between said side walls, said handle having an upper gripping portion and supportive end portions, and defining a hand opening below said gripping portion and between said end portions; and

   a profiled passageway extending through said bottom surface and communicating with said handle hand opening.

2. A tool tray according to Claim 1, said tool tray gripping handle portion having a U-shaped transverse sectional configuration.

3. A tool tray according to Claim 2, said bottom tray surface being substantially planar, whereby said tray being free standing.

4. A tool tray according to Claim 3, said tray being adapted for receipt within side walls of a container, and having peripherally located means for engaging said container side walls, whereby said tray is supported by said container side walls and is freely removable from therebetween by a manual lifting of said tray by said handle.

5. A stackable tool tray comprising:

   a bottom and top surface and side walls extending upwardly from said bottom surface to said top surface;

   an intermediately disposed profiled handle extending upwardly between said side walls of said tray, said handle having an gripping portion and supportive end portions, and a hand opening

located below said gripping portion and between said handle end portions;

a profiled passageway extending through said bottom surface and communicating with said handle hand opening, whereby upon stacking positionment of the bottom surface of a first said tray upon the top said surface of a substantially like-configured second said tray, the handle gripping portion of said second tray projects through said profiled passageway of said first tray into close underlying proximity to said handle gripping portion of said first tray.

6. A tool tray according to Claim 5, said first tray handle gripping portion having downwardly directed means for nesting with complementary means of said second tray handle gripping portion.
7. A tool tray according to Claim 6, said first and second handle gripping portions having respectively sized U-shaped transverse sectional configurations, said first tray handle gripping portion being receivable within said second tray handle gripping portion.
8. A tool tray according to Claim 7, wherein said supportive end portions of said profiled handle diverging outwardly in a downward direction.
9. A tool tray according to Claim 7, wherein said first and second handle gripping portions in said nested condition having offset surface means for defining an opening therebetween, whereby admitting a user's fingers for manual separation of said handle gripping portions.
10. A tool tray according to Claim 5, wherein said bottom tray surface is substantially planar, whereby said first and second

trays are free standing in the stacked condition.

11. A tool tray according to Claim 5, wherein said stacked first and second trays being receivable within a storage container, having vertical side walls, and said trays having peripherally located means for engaging said container side walls, whereby said trays are simultaneously or, alternatively, individually removable from said container by a manual lifting of said trays by said handles.

12. A tool tray according to Claim 11, said simultaneous removal of said trays being by a manual lifting of said underlying handle gripping portion of said second tray.

13. A tool tray according to Claim 12, wherein said bottom surface of said first tray substantially covering said second tray in the stacked condition.

14. A tool tray substantially as described herein with reference to and as illustrated in the accompanying drawings.

15. A toolbox incorporating at least one tool tray according to any preceding claim.

Amendments to the claims
have been filed as follows

1. A stackable tool tray comprising:

a bottom and top surface and side walls extending upwardly from said bottom surface to said top surface;

an intermediately disposed profiled handle extending upwardly between said side walls of said tray, said handle having an gripping portion and supportive end portions, and a hand opening located below said gripping portion and between said handle end portions;

a profiled passageway extending through said bottom surface and communicating with said handle hand opening, whereby upon stacking positionment of the bottom surface of said tray (hereinafter referred to as "said first tray") upon the top said surface of a substantially like-configured second tray, the handle gripping portion of said second tray projects through said profiled passageway of said first ray into close underlying proximity to said handle gripping portion of said first tray such that both handle gripping portions can be grasped simultaneously in single-handed fashion.

2. A tool tray according to Claim 1, said first tray handle gripping portion having downwardly directed means for nesting with complementary means of said second tray handle gripping portion.

3. A tool tray according to Claim 2, said first and second handle gripping portions having respectively sized U-shaped transverse sectional configurations, said first tray handle gripping portion being receivable within said second tray handle gripping portion.

4. A tool tray according to Claim 3, wherein said supportive end portions of said profiled handle diverge outwardly in a downward direction.

5. A tool tray according to Claim 3 or 4, whrein said first and second handle gripping portions in said nested condition have offset surface means for defining an opening therebetween, whereby admitting a user's fingers for manual separation of said handle gripping portions.

6. A tool tray according to any preceding claim, wherein said bottom tray surface is substantially planar, whereby said first and second trays are free standing in the stacked condition.

7. A tool tray according to any preceding claim, wherein said stacked first and second trays are receivable within a storage container, having vertical side walls, and said trays having peripherally located means for engaging said container side walls, whereby said trays are selectively simultaneously or individually removable from said container by a manual lifting of said trays by said handles.

8. A tool tray according to Claim 7, said simultaneous removal of said trays being by a manual lifting of said underlying handle gripping portion of said second tray.

9. A tool tray according to Claim 8, wherein said bottom surface of said first tray substantially covers said second tray in the stacked condition.

10. A stackable tool tray comprising:

a bottom and a top surface and side walls extending upwardly from said bottom surface to said top surface;

an intermediately disposed profiled handle extending upwardly between said side walls of said tray, said handle having a gripping portion and supportive end portions, and a hand opening located below said gripping portion and between said handle end portions;

a profiled passageway extending through said bottom surface

and communicating with said handle hand opening, whereby upon stacking positionment of the bottom surface of said tray (hereinafter referred to as "said first tray") upon the top said surface of a substantially like-configured second said tray, the handle gripping portion of said second tray projects through said profiled passageway of said first tray into close underlying proximity to said handle gripping portion of said first tray;

said stacked first and second trays being receivable within a storage container having vertical side walls, and said trays having peripherally located means for engaging said container side walls, whereby said trays are selectively simultaneously or individually removable from said container by a manual lifting of said trays by said handles.

11. A tool tray according to Claim 10, said simultaneous removal of said trays being by a manual lifting of said underlying handle gripping portion of said second tray.

12. A tool tray according to Claim 10 or 11, wherein said bottom surface of said first tray substantially covers said second tray in the stacked condition.

13. A set of cooperative tool trays, comprising: first and second trays, each tray comprising a top and a bottom surface and side walls extending upwardly from said bottom surface to said top surface; an intermediately disposed profiled handle having an upper gripping portion and supportive end portions, and defining a hand opening below said gripping portion and between said end portions; and a profiled passageway extending through said bottom surface and communicating with said handle hand opening; said first tray being stackable upon the top surface of said second tray, and said second tray handle having a higher profile than said first tray handle, adapted to project through said profiled passageway of said first tray into close underlying proximity with said handle gripping

portion of said first tray and adapted to bring said hand openings of said first and second trays into substantial co-alignment, whereby said handle gripping portions of said trays can be simultaneously lifted by said second tray handle in single handed fashion.

14. A tool tray set according to Claim 13, wherein said first and second handle gripping portions having respectively sized upwardly opening U-shaped transverse sectional configurations, said first tray handle gripping portion being receivable between side walls of said second tray handle gripping portion in a nested condition.

15. A tool tray set according to Claim 14, wherein said first and second handle gripping portions in said nested condition have offset surface means defining an opening therebetween for admitting a user's fingers for manual separation of said handle gripping portions.

16. A tool tray set according to Claim 15, wherein said first and second trays are free standing in the stacked condition.

17. A tool tray set according to Claim 16, further comprising a storage container having vertical side walls, and said trays being receivable into said container between said container side walls and having peripherally located means for engaging said container side walls, whereby said trays are selectively simultaneously or individually removable from said container by a manual lifting of said trays by said handles.

18. A tool tray set according to Claim 17, said simultaneous removal of said trays being by a manual lifting of said underlying handle gripping portion of said second tray.

19. A tool tray set according to Claim 18, wherein said bottom

surface of said first tray substantially covers said second tray without diminishing an internal volumetric capacity of said second tray.

20. A tool tray substantially as described herein with reference to and as illustrated in the accompanying drawings.

21. A set of cooperative tool trays substantially as described herein with reference to and as illustrated in the accompanying drawings.

22. A toolbox provided with at least one tool tray, substantially as described herein with reference to and as illustrated in the accompanying drawings.

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